REMARKS

This is a full and timely response to the Final Office Action mailed August 7, 2006.

No claims have been amended in this response. Accordingly, claims 22-38 and 40 are currently pending in this application.

In view of this response, Applicants believe that all pending claims are in condition for allowance. Reexamination and reconsideration in light of the above amendments and the following remarks is respectfully requested.

Claim Rejections- 35 U.S.C. § 103

In the Action, claims 22-25, 27, 29, 30-33, 35, 36, 38, and 40 were rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Silverbrook (WO 02/02330) in view of Murcia et al. (U.S. Patent No. 6,270,187) and Shinobu (JP 2002 240287). Claims 28 and 37 were rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Silverbrook in view of Murcia et al. and Shinobu, and further in view of Ikeda et al. (US Patent No. 6,309,050). Claims 26 and 34 were rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Silverbrook in view of Murcia et al. and Shinobu, and further in view of Wen et al. (U.S. Patent No. 6,046,822). Claims 26 and 34 were further rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Silverbrook in view of Murcia et al., Shinobu , and Ikeda et al., and further in view of Wen et al. These rejections are respectfully traversed.

Each of independent claims 22-24 and 30-32 discloses, *inter alia*, a liquid discharging head having liquid discharging portions, each of which comprises a liquid chamber containing liquid to be discharged and a plurality of heating elements arranged in a predetermined direction inside the liquid chamber to generate a bubble, wherein the influence of discharging failure of a defective discharging portion is reduced by prohibiting the defective liquid discharging portion from discharging and discharging droplets from a liquid discharging portion different from the defective liquid discharging portion while **controlling the discharging direction by applying a difference in energy between at least one of the heating elements and at least another one of the heating elements so as to control the discharging direction of the liquid discharged** from the liquid discharging outlet, according to stored information about the defective liquid discharging portion.

Figures 14, 17, 18, and 19 of the present Specification show that a wide range of ink directions can be obtained by varying the difference in energy between the heating elements (*see also the Present Application at page 65, lines 5-10*).

In contrast, Shinobu does not teach that the direction of the ink drop can be controlled by applying a difference in energy between the heating elements, but rather, Shinobu only teaches that either one or the other of the heaters (11A or 11B) is driven to give either a direction of ink drop D1 or ink drop D2 (*see Shinobu at Fig. 1*). Shinobu states that "an ink drop D1 or D2 is discharged from a nozzle 14a by driving a heater 11A or 11B, and is made to impact on a printing object body which shifts relatively to the nozzle 14a" (*see Shinobu at the Abstract*). Shinobu therefore makes clear that the direction of the ink drop is not controlled by applying an energy difference between two or more heating elements, but rather, the direction of the ink drop is dependent on the position of the heaters (*see Shinobu at Fig. 6*).

In addition to the declaration in the Abstractof Shinobu that an ink drop is discharged from a nozzle by driving a heater 11A or 11B, the drawings in Shinobu also confirm that direction of the ink drop is not modified by applying a difference in energy between the heating elements. Figure 1 of Shinobu shows only two ink drop directions for ink drops D1 and D2, which are accomplished by driving either heater 11A or 11B respectively. Figure 3 shows the same characteristics as Figure 1 (i.e. that the directions for ink drops are controlled by driving either heater 11A or 11B) with the additional suggestion that an ink drop can be made to go straight by driving both at the same time. Therefore, Figure 3 shows one ink drop direction is obtained by driving only heater 11A, a second ink drop direction is obtained by driving only heater 11B, and a straight direction is obtained by driving both 11A and 11B simultaneously. Accordingly, Figures 1 and 3, fail to show that the ink discharge direction can be controlled by applying a difference in energy between the two heaters.

Figure 6 of Shinobu shows that the angle (θ) of the ink drop direction is not changed by applying a difference in energy, but rather the angle (θ) is varies only relative the position (X) of the heater. Figure 6(a) shows that the angle (θ) is proportional to the position (X) of the heater in relation to the center of the liquid chamber in the discharging portion. Figure 6(b) contains a graph further showing that the angle (θ) of the ink drop direction is proportional to the position (X) of the heating element.

Accordingly, Shinobu fails to disclose, teach, or even suggest the claimed invention, which controls the discharging direction by applying a difference in energy between at least one of the heating elements and at least another one of the heating elements so as to control the discharging direction of the liquid discharged from the liquid discharging outlet. Further, as conceded in the previous actions, nether Silverbrook, Murcia et al., Ikeda et al., nor Wen et al. discloses the claimed invention, which controls the discharging direction by applying a difference in energy between at least one of the heating elements and at least another one of the heating elements so as to control the discharging direction of the liquid discharged from the liquid discharging outlet.

Accordingly, because Silverbrook, Murcia et al., Ikeda et al., Wen et al and Shinobu, either alone or in combination, fail to disclose, teach or suggest each and every limitation of claims 22-24 and 30-32, a *prima facie* case of obviousness has not been established, and withdrawal of this rejection is respectfully requested. *See, e.g., In re Royka*, 490 F.2d 981, 180 USPQ 580 (CCPA 1974); *accord.* MPEP 2143.03.

Moreover, aside from the novel limitations recited therein, claims 25-29, 33-38, and 40, being dependent either directly or indirectly upon allowable base claims 22-24 and 30-32, are also allowable for at least the reasons set forth above. Withdrawal of the rejection of these claims is therefore courteously solicited.

CONCLUSION

For at least the foregoing reasons, each of the presently pending claims in this application is believed to be in immediate condition for allowance. Accordingly, the examiner is respectfully requested to pass this application to issue. If the examiner has any comments or suggestions that could place this application in even better form, the examiner is invited to telephone the undersigned attorney at the below-listed number.

Applicant believes no fee is due with this response. However, if a fee is due, please charge our Deposit Account No. 18-0013, under Order No. SON-2826 from which the undersigned is authorized to draw.

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Respectfully submitted,

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